NASA
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SUBJECT: Analysis Of Wire Brushes

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1.0 REQUEST:

Determine the alloy of the wires removed from the wire bushes. Four brushes, labeled as VAB, MSC-33 (7920-00-269-1259), PAD and 9246, were submitted for analysis.

2.0 PROCEDURE:

2.1 The brushes were initially analyzed by scanning electron microscopy (SEM) coupled with electron dispersive spectroscopy (EDS). SEM/EDS analysis revealed that the wires of the brushes labeled as VAB and MSC-333 had an elemental composition similar to a stainless steel. The wires of the brushes labeled as PAD and 9246 had a composition similar to that of low alloy steel.

2.2 Based on the SEM/EDS analysis, the wires removed from the VAB and PAD brushes were analyzed by the inductively coupled plasma spectrometer (ICP) and the carbon and sulfur contents were determined by a combustion method.

3.0 RESULTS:

ELEMENT	VAB (%)	AISI 302	PAD (%)	AISI 1095
Carbon	0.12	0.15 max	1.04	0.90/1.03
Chromium	18.2	17.00/19.00	0.05	--------
Manganese	0.60	2.00 max	0.39	0.30/0.50
Nickel	8.45	8.00/10.00	0.06	--------
Phosphorus	Not tested	0.045 max	Not tested	0.040 max
Silicon	0.34	1.00 max	0.26	0.15/0.30
Sulfur	0.008	0.03 max	0.04	0.050 max
Iron	Balance	Balance	Balance	Balance

EQUIPMENT: ICP, *MSLCAL0117*
CS-444, *MSLCAL0118*
SEM/EDS, *MSLCAL0135*

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